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PIX

WHERE SNOW MIGHT BE EXPECTED, COAL LIES ON A SPITSBERGEN MOUNTAIN SIDE (Bulletin No. 1)

Bulletin No. 1, December 3, 1951

Norway and Russia Mine Spitsbergen Coal

A COLD crossroads of the cold war are Norway's jagged Spitsbergen Islands, where inquisitive polar bears nose into the only mining settlements operated by Soviet Russia on the free side of the Iron Curtain.

Svalbard—"land of the cold coast"—is the ancient Norse name for this Arctic archipelago (illustration, cover) which became part of the Kingdom of Norway only a quarter of a century ago. More than 1,500 Norwegian workers now bring nearly 500,000 tons of coal a year out of Spitsbergen mines—more than before World War II.

Norway a Member of NATO

Spitsbergen straddles polar air routes between Europe and North America. But under a 1920 treaty, the islands cannot be fortified, and signing nations (Norway, United States, Britain and Dominions, France, Italy, Japan, the Netherlands, Denmark, Sweden, and Russia) are guaranteed continued access to any economic interests they might hold there.

Russia, too, mines Spitsbergen coal. Norway is a member of the North Atlantic Treaty Organization; Russia is not. The erstwhile no-man's-land is now a meeting place of East and West.

For more than 300 years European nations fought Arctic warfare over Spitsbergen's wealth. First for whales, then fur, finally coal, ships and men forced their way through polar ice to the ironbound coasts of a glacier-capped country one-fifth the size of Norway itself. The northern islands reach within 600 miles of the North Pole.

On Amsterdam Island, through the 1600's, stood Smerenburg—Blubbertown—a booming summer city of evil-smelling rendering vats, crude huts, taverns, and as many as 18,000 whaling men of the Netherlands. Other settlements were built by the English, French, Norwegians, and Danes.

Base for Arctic Exploration

Beginning about 1715, crude river boats crossing the open sea brought black-bearded Russians to Spitsbergen. Wintering in darkness and misery in thousands of huts dotting coast line and interior, they hunted Arctic fox, polar bears, walruses, seals, and eider ducks. Norwegian hunters came from Hammerfest to trap reindeer for meat.

Spitsbergen has been the base for many noted explorers: the ill-fated Andrée, originator of polar exploration by air; Wellman, Peary, Byrd, Amundsen, Ellsworth, Nobile, Wilkins. The first scientific expedition, in 1773, was English. On board one of the ships was a 14-year-old midshipman named Horatio Nelson—later Admiral Lord Nelson—who was very nearly killed by a polar bear.

Viking voyagers in the 12th century, the Dutchman Willem Barents in 1596, Henry Hudson in 1607, may have seen black coal streaking the barren mountain sides, but mining did not begin until John M. Longyear of Boston sank a shaft in 1905. His success touched off a battle for mining

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MELVILLE BELL GROSVENOR

NOVA SCOTIA'S MICMAC INDIAN CHILDREN FILE ONTO A MODERN BUS WHEN THE SCHOOL DAY IS DONE (Bulletin No. 5)

The school at Eskasoni Indian settlement teaches such trades as bricklaying and carpentry. English is spoken. A farm in connection has up-to-date equipment. The community store provides funds for athletics. Adult Micmacs serve as hunting guides. They roam Cape Breton Isle's beautiful Bras d'Or Lakes (background).

Bulletin No. 2, December 3, 1951

Dam-Building Beavers Help Men Control Floods

BEAVERS, those determined little dam-builders, once nearly extinct, are now firmly established over most of their former range in the United States. They are working busily as expert conservationists, as well as carrying on their fur-supplying activities.

Relocation of their scattered colonies takes the beavers' talent for engineering into areas where beaver-size dams are needed to aid in flood control and the conservation of natural resources. State and federal conservation officers now supervise many of their jobs.

Steal a March on Federal Engineers

Two Massachusetts beavers recently built a dam 18 feet long and six feet wide near Walpole. They completed the job in less than three weeks. Cost of labor: nothing.

In New York State, federal engineers had worked out plans for a flood-control and fire-protection pond. Beavers beat them to the site. The dam and the resulting pond were completed when the engineers arrived at the proposed site.

It has literally rained beavers in Idaho's conservation operations. Beavers in boxes were parachuted into conservation areas.

In Oregon, four beaver helpers lost their jobs because they failed to follow the engineering plans. On their own, the beavers had changed the site of the dam.

Sometimes beavers cause losses to farmers and to railroads by putting ponds where ponds are not wanted. Instead of killing the toothy little animals for their pelts, they are caught and moved to more suitable locations, with the hope that they will carry on their construction work where it will benefit human beings.

In pioneer times, traffic in beaver skins to supply the European demand was an important factor in promoting the settlement of the entire North American wilderness from Labrador to Mexico. Beaver hats were the height of elegance, and beaver stoles were a popular note in the wardrobes of European ladies of fashion.

Pilgrims Sent Them Back to England

Beaver skins became the "coin of the realm" during generations of intensive trapping. One beaver skin might purchase a brass kettle or two hatchets. A four-foot gun cost twelve beaver skins.

The second ship the Pilgrim Fathers sailed back to England carried two hogsheads of beaver pelts and otter skins.

Beaver pelts even served as yardsticks. A three-and-a-half-point blanket had an area of three large beaver skins and one small one, the "point" denoting the value in skins. Some blankets are still marked in "points"—the three-and-a-half-point blanket is twin-bed size.

The Wrigley and Tribune towers in Chicago stand today where trappers once repaired their boats before setting out across Lake Michigan to hunt the beaver on Mackinac Island.

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rights which compared with the Alaska gold rush. Any nation that could dig out the coal could have it. Many tried, but later they sold their claims either to Norway or to Russia.

German invaders completely wrecked Spitsbergen's mining towns during World War II. Now rebuilt, there are three Norwegian communities—Longyearbyen, Sverdrupbyen, and Ny Alesund. Three Russian settlements—Barentsburg, Grumant City, and Pyramiden—on Vest Spitsbergen, largest island of the archipelago, house 2,400 inhabitants. Russian postwar coal production has not recovered as has the Norwegian.

On the shores of the great Is Fjorden (ice fjord) there are lighthouses, radio beacons, meteorological stations, hospitals, movie theaters, and the world's northernmost radar station. Such navigational aids extend the short shipping season into late October, when the ice pack closes on Svalbard, and the sun disappears for the four-month winter night.

NOTE: The Spitsbergen archipelago is shown on the National Geographic Society's map of The Top of the World. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For further information, see "Spitsbergen Mines Coal Again," in the *National Geographic Magazine* for July, 1948; "Flights from Arctic to Equator," April, 1932; and "A Woman's Winter on Spitsbergen," August, 1928; see also, in the GEOGRAPHIC SCHOOL BULLETINS, April 26, 1948, "European Tension Spotlights Spitsbergen"; and "Spitsbergen Sits on Top of the World," February 3, 1947. *(Back issues of the Magazine may be obtained from the Society's headquarters at 60¢ a copy, 1946 to the present date; $1.00 from 1930 through 1945; and $2.00 from 1912 through 1929. Earlier issues, when available, at varied prices.)*

PIX

GRASS AND SUMMER FLOWERS GROW ON TREELESS SPITSBERGEN. TWO NORWEGIAN GIRLS TAKE A SHORT CUT THROUGH A CEMETERY OF MINE-ACCIDENT VICTIMS

Bulletin No. 3, December 3, 1951

Gulf Stream Still Holds Atlantic Secrets

OCEAN explorers are discovering new secrets of the Gulf Stream, centuries after it first caught the ships and imaginations of seafarers. Only recently have scientists proved that the great warm current wanders, sometimes shifting course by hundreds of miles in response to unknown pressures.

In the Stream's indigo-blue waters off southern Florida, the National Geographic Society and the University of Miami are studying oceanic plankton, drifting meadows of microscopic life which sustain fish.

North Atlantic Waters Slowly Revolve

East of Newfoundland's Grand Banks, the Woods Hole (Massachusetts) Oceanographic Institution sent its research ship *Albatross III* this summer to investigate the fingers of warm water which curl away toward Iceland, Scandinavia, the British Isles, and continental Europe. The five-months cruise may determine whether the Gulf Stream actually branches, or if it consists instead of several currents side by side.

Driven by the winds, turned by the spinning earth, the waters of the North Atlantic slowly revolve, always clockwise as viewed from above. A great swath of tropical water pouring north from the tip of Florida forms the western rim of this giant wheel (map, next page).

Behind it, trade winds pile Caribbean Sea waters through the Yucatan Channel into the Gulf of Mexico, raising it approximately seven inches higher than the level of the Atlantic Ocean off Florida's east coast.

Escaping the overfilled basin, water rushes through the Straits of Florida between Key West and Cuba. It spills out at 14 cubic miles an hour, 1,000 times the average flow of the Mississippi River at its mouth. At this point the current measures about 15 miles across, from a quarter to a half mile deep.

Off St. Augustine, Florida, the Antilles Current sweeps in along the Bahamas. Great volumes of water well up from beneath the rim of the weed-matted Sargasso Sea. The Gulf Stream grows wider and deeper.

Meets Cold Current at Grand Banks

Following the edge of the continental shelf, it brings whirling storms to Cape Hatteras. Beyond this point, turning northeast, the current's swiftest part still flows at four or five nautical miles an hour.

Over the "tail" of the Grand Banks, the Gulf Stream meets the Arctic in the cold, gray-green waters of the Labrador Current. Lying across this "cold wall," in 1922, the Coast Guard cutter *Tampa* lowered thermometers from bow and stern. Only 240 feet apart, one read 34 degrees, the other 56 degrees.

Although much of the Gulf Stream water, after crossing the North Atlantic, curves south again and then back westward to its starting point, the mighty current sends off circling eddies much as rising smoke does in still air.

Benjamin Franklin first mapped the Gulf Stream. As Deputy Postmaster General of the colonies in 1770, he was concerned by the fact that

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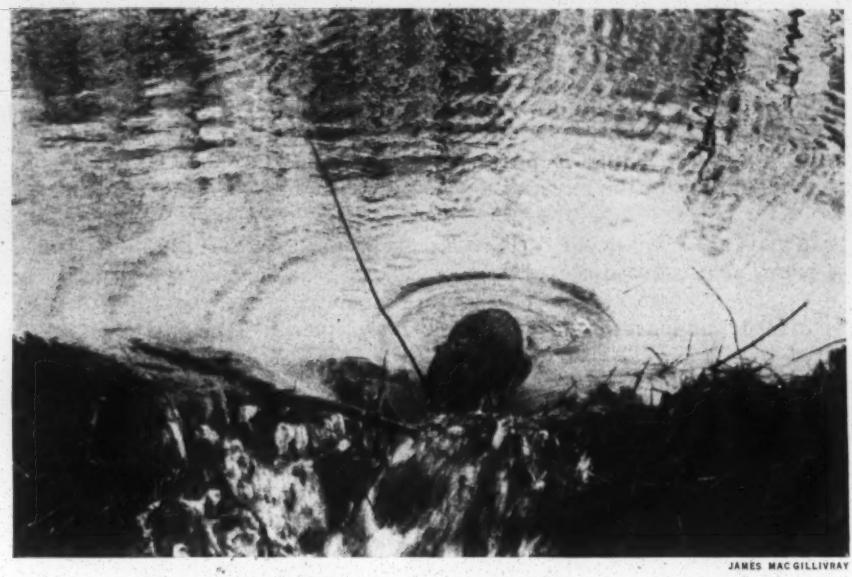
This forested island off northern Michigan, at the top of Lake Huron, was the headquarters for John Jacob Astor's fabulous fur-trading company. St. Louis, Detroit, San Francisco, New York—all have been fur-trading centers for generations.

Today the beaver is second only to the muskrat in Canada's annual $15,000,000 fur crop. Ontario and Quebec provinces rank first in production. Britain's Princess Elizabeth was given two beaver skins on her recent visit to Winnipeg. They were symbolic of the tribute paid the crown for trapping rights in Canada's vast Hudson Bay area. The beaver skin was the cornerstone of the Hudson's Bay Company.

There is no open season on beaver in the United States. Individual states, however, designate limited periods when beaver may be trapped if there is an oversupply. During 1950 some 125,000 pelts were taken.

NOTE: For additional information, see "The Romance of American Furs," in the *National Geographic Magazine* for March, 1948; "Mickey the Beaver," December, 1928; and "The Wild Life of Lake Superior," August, 1921.



JAMES MAC GILLIVRAY

WITH A LONG, STRAIGHT STICK, THE BEAVER REPAIRS A GAP IN HIS DAM

Upkeep of a dam, as well as the original construction, occupies much of the beaver's time. Here one of the busy little animals plugs a hole with sticks and stones. With his sharp front teeth, the beaver can fell a large tree, which provides material for his home as well as leaves for food. The beaver has one great advantage, teeth-wise, over human beings: to make up for the wear and tear of sawing wood, his teeth continue to grow, so that he always has a sharp implement.

GEOGRAPHIC MAPS—TIMELY AIDS TO EDUCATION

Classrooms need accurate, up-to-date maps for history interpretation and current events analysis. The National Geographic Society's many-color wall maps answer these needs. They cover the world. 50¢ apiece in U. S. and possessions; elsewhere 75¢. Four enlarged maps are $2.00 each in U. S. and possessions; elsewhere $2.25. Send for complete map list.

Bulletin No. 4, December 3, 1951

Sulphur Production at Peak for Industry

SULPHUR, pretty as gold dust piled high on a Mississippi River barge, is scarce for defense needs despite record production.

Industry must have sulphur and plenty of it. United States output from all sources has averaged five million long tons annually since 1948. Ten years ago, the average was little more than two million long tons.

Used in 32,000 Common Articles

Even at the current all-time record pace, sulphur output is a million tons less than domestic and export demands. The nation's sulphur stockpile has been tapped until now it is down to a mere six month's supply—dangerously little, industry leaders warn.

In raw powder form or combined in sulphuric acid, sulphur is indispensable in making chemicals, fertilizers, insecticides, paints, synthetic rubber, rayon—32,000 articles in common use.

The United States and Canada need 700,000 tons a year for their pulp and paper industries alone. Into the production of each automobile goes 30 pounds or more. German industrial collapse was hastened in two world wars by the loss of the Sicilian sulphur supply. Today, Great Britain, France, Belgium, and Western Germany plead for sulphur to strengthen the North Atlantic Treaty Organization.

On a Mississippi River barge one is likely to see this chemical mineral in bright yellow brimstone form. Salt-dome caprocks under marshlands of the Gulf Coast of Texas and Louisiana hold deposits of pure sulphur recoverable at low cost. They yield three-fourths of the world's current sulphur supply.

Three-in-one Pipes Bring up Sulphur

Men drilling for oil along the Gulf Coast struck sulphur quite unexpectedly. Only a score or so of the region's many oil-yielding salt-domes have so far been found to hold the yellow mineral. The few, however, have proved enormously rich, one providing 12,000,000 tons. Port Sulphur and Newgulf are lively model towns that Gulf Coast sulphur has built. The most recently discovered big sulphur deposit is at the tip of the Mississippi's delta.

Sun-tanned workmen stay at the surface in mining sulphur at depths of 500 to 1,500 feet by the ingenious Frasch process. A one-inch pipe within a three-inch pipe, both encased within a six-to-eight-inch pipe, is sunk to the sulphur deposit. Very hot water sent down the outer pipe melts the brimstone at its base. Compressed air in the smallest pipe forces the liquefied sulphur to the surface through the middle-size pipe.

Because of this low-cost method, the mineral is no more expensive today than it was 25 years ago. Known reserves in the Gulf region are limited, however, and experts think production there may now be at its peak. If so, increasing sulphur demand can be met by recovering more from smelters, from natural and industrial gases (illustration, next page), and from pyrites—all at considerably higher cost.

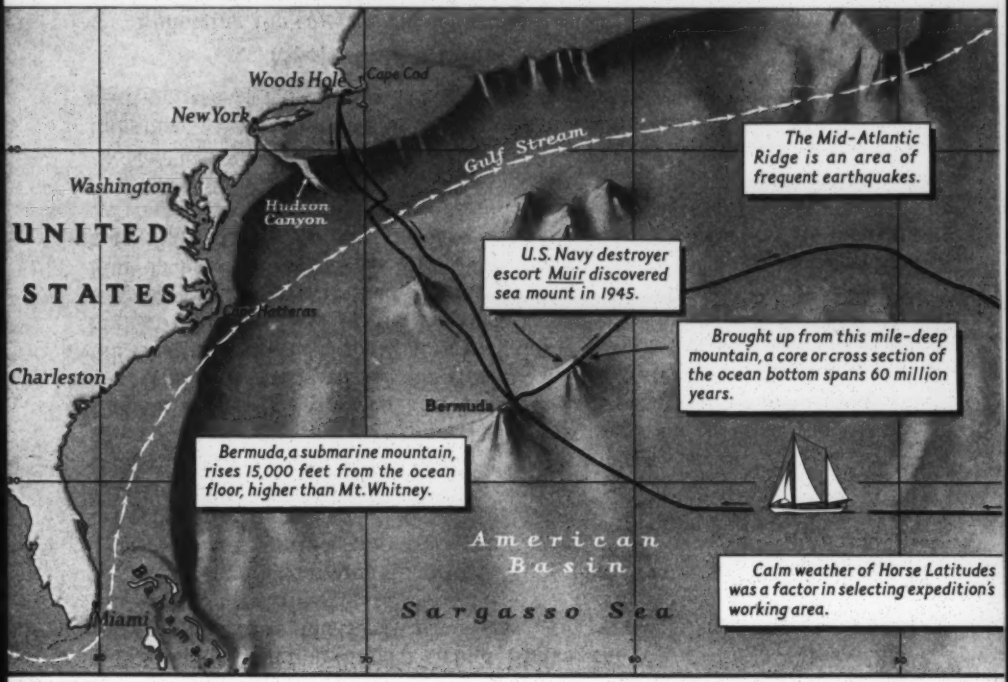
UMI

mail packets from England took two weeks longer to reach Boston than did Rhode Island merchantmen manned by captains who knew the current.

Long before, in 1513, Ponce de Leon became the first mariner in history to record the existence of the Gulf Stream. After discovering Florida, his three ships tried to turn south along the coast. The pilot's log reports that they met "a current such that, although they had a great wind, they could not proceed forward, but backward."

NOTE: The course of the Gulf Stream is shown on the Society's map of the Atlantic Ocean, and The World Map.

For further information, see "Our Global Ocean—Last and Vast Frontier," in the *National Geographic Magazine* for January, 1945; "Certain Citizens of the Warm Sea," January, 1922 (out of print; refer to your library); and "Interesting Citizens of the Gulf Stream" and "Treasure-House of the Gulf Stream," January, 1921.


Woods Hole
Cape Cod
New York
Gulf Stream
The Mid-Atlantic Ridge is an area of frequent earthquakes.
Washington
Hudson Canyon
UNITED STATES
U.S. Navy destroyer escort Muir discovered sea mount in 1945.
Cape Hatteras
Brought up from this mile-deep mountain, a core or cross section of the ocean bottom spans 60 million years.
Charleston
Bermuda
Bermuda, a submarine mountain, rises 15,000 feet from the ocean floor, higher than Mt. Whitney.
American Basin
Sargasso Sea
Calm weather of Horse Latitudes was a factor in selecting expedition's working area.
Miami

DRAWN BY HARRY S. OLIVER AND IRVIN E. ALLEMAN

WHITE ARROWS SHOW THE GULF STREAM'S NORTHEASTERLY PATH ACROSS THE ATLANTIC OCEAN

From the Gulf of Mexico, in a warm swath some 15 miles wide, the Gulf Stream enters the Atlantic proper near Miami, Florida. It follows the Carolina coast line to a point off stormhaunted Cape Hatteras, where it crosses the continental shelf. Black lines connecting Woods Hole, Massachusetts, with Bermuda and beyond indicate the route of an expedition jointly sponsored by the National Geographic Society, Woods Hole Oceanographic Institution, and Columbia University to explore the Mid-Atlantic Ridge, most of which is to the right of this map.

"Everyday Life in Ancient Times"

A new book compiled by the National Geographic Society brings to life the peoples of the ancient lands where Western civilization originated—Mesopotamia, Egypt, Greece, and Rome. Illustrated with 120 full-color paintings by H. M. Herget and written by four noted authorities, the 356-page volume is available to schools at $5.00 a copy postpaid in the United States and its possessions, and $5.25 abroad.

Bulletin No. 5, December 3, 1951

Fall Hunting Season Busies Micmac Indians

WITH Maine's annual potato crop harvested, Micmac Indians who joined the state's army of potato pickers have returned to their regular haunts in Nova Scotia in time to guide late-autumn hunting parties through the Canadian province's lake and forest wilderness.

The Micmacs are the earliest-known inhabitants of Nova Scotia (including Cape Breton Island), Prince Edward Island, and the northern part of New Brunswick. Their language is perpetuated today in such place names as Whycocomagh, or "Head-of-the-water"—a picturesque village on Cape Breton Island; Shubenacadie, or "Place-where-wild-potatoes-grow," in central Nova Scotia; and Tatamagouche, or "Meeting-of-the-waters," on the south shore of Northumberland Strait.

Indians Travel Free on Railroads

While the Micmacs spend much of their time guiding sportsmen's canoes through the trout-filled chains of lakes, or stalking deer, bear, or grouse half hidden by forest background, many also are expert bricklayers or carpenters, trained in government Indian schools (illustration, inside cover and next page).

Once a year, women and girls leave the reservations and, traveling free on the railways, visit homes in towns and cities to sell bright-colored baskets. On her shoulder, each carries her wares tied in an immense brown tarpaulin. When a door is opened she drops the bundle, slips the huge knot and there before the customer displays her complete stock. She can weave a handy shopping-size basket in about two hours.

Although the theory of the Micmacs' Algonquian ancestry has been quite generally accepted, evidence pointing to possible Eskimo extraction stirs the interest of anthropologists and historians.

The Micmacs were encountered by the earliest explorers of the northeast coast of America, among them Sebastian Cabot in 1497, and Sieur de Monts, Champlain, and Lescarbot in 1605.

First Social Club in America

Chief Membertou was always an honor guest at the feasts of the Order of the Good Time organized by Champlain to cheer his comrades during the long winter of 1606-07. This "first social club in America" is still active at Annapolis Royal, the oldest permanent settlement north of the Gulf of Mexico. Membertou and his braves supplied plenty of moose, caribou, beaver, otter, bear, porcupine, rabbit, duck, ruffed grouse, trout, and cod for the first meetings of the epicurean order.

The nomadic Micmacs favored portable wigwams of birch bark that could be folded and packed in canoes. When the snow was deep they hunted on snowshoes. Their dogs were trained to track down big game and to catch beaver under the ice.

Moose robes were dyed their favorite flame color from a plant they called bedstraw. Thread was made from moose tendon, beaten until it separated into fine strands.

UMI

Sicily supplied most of the world's sulphur for centuries from deposits of the Gulf Coast type. Japan and Chile produce it commercially from volcanic deposits. Spain has abundant sulphur-bearing pyrites.

Homer and Pliny wrote of sulphur collected from volcanoes. The ancients used it to bleach linen and clean wool, as well as to make torches and medicines. Cortés's men descended into the crater of Mexico's Popocatepetl volcano to obtain sulphur for making gunpowder. Its uses multiplied as wars increased.

NOTE: For additional information on minerals, refer to the subject in the *Cumulative Index to the National Geographic Magazine* in your library.

WILLARD R. CULVER

LIKE INGOTS OF GOLD, PURE SULPHUR LIES STACKED IN AN ARKANSAS PLANT

This solid mineral comes from a gas which smells like rotten eggs. The gas itself, hydrogen sulphide, is a by-product of natural gas. A chemical process turns it into molten sulphur. It then cools and dries into blocks which will be used later to make sulphuric acid.

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While early French settlers found the Micmacs to be good neighbors, the tribe was fierce and warlike toward the British for more than two centuries. Today the Micmacs are friendly and law-abiding. They number about 2,500, a few hundred less than their estimated population in the early 1600's. During the long Nova Scotia winters they live on 40 small reserves, directed from two agency villages.

Like Indians everywhere, Micmacs retell legends of tribal heroes. Biggest hero is Glooscap, a Paul Bunyan figure capable of rearranging the landscape. Infuriated by a giant beaver dam that appeared overnight from Cape Blomidon across the entrance to the Basin of Minas, Glooscap tore the dam from its moorings and bent it back into the Bay of Fundy to form Cape Split. Once, in a rage, he overturned his kettle, changing it into an island—the present-day Isle Haut.

NOTE: The lands of the Micmacs may be located on the Society's map of Canada, Alaska & Greenland.

For additional information, see "Quebec's Forests, Farms, and Frontiers" and "Nomads of the Far North" (with 16 reproductions of paintings), in the *National Geographic Magazine* for October, 1949.

MELVILLE BELL GROSVENOR

MICMAC CHILDREN STUDY A NUTRITION CHART IN THEIR NEW SETTLEMENT SCHOOL

National Geographic Society Releases Its Long-Awaited New Bird Book

Now being distributed to schools, libraries, and individuals over the world is the National Geographic Society's newest publication, the 328-page bird book.

Stalking Birds with Color Camera, by Dr. Arthur A. Allen, is a sturdily bound, lavishly illustrated presentation of North America's birds. It contains 331 color pictures showing 266 species. Thirteen chapters describe different types of birds or various aspects of their study and photographing.

Dr. Allen, professor of ornithology at Cornell University and one of the nation's leading bird authorities, has pioneered in the field of high-speed photography. Many of his articles and pictures have appeared in the *National Geographic Magazine*.

Stalking Birds with Color Camera is available only from the National Geographic Society. $7.50 in United States and its possessions; elsewhere, $7.75. Postpaid.